



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,385	07/02/2003	Kazushige Hotta	1324.68135	3186
7590 Patrick G. Burns, Esq. GREER, BURNS & CRAIN, LTD. Suite 2500 300 South Wacker Dr. Chicago, IL 60606	02/26/2007		EXAMINER HU, SHOUXIANG	ART UNIT 2811 PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE		
3 MONTHS	02/26/2007	PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/612,385	HOTTA ET AL.
	Examiner Shouxiang Hu	Art Unit 2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 13 November 2006.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-26 is/are pending in the application.  
 4a) Of the above claim(s) 1-15, 18-20, 22 and 23 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 16, 17, 21 and 24-26 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
     Paper No(s)/Mail Date 06/26/2006.
- 4) Interview Summary (PTO-413)  
     Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Election/Restrictions***

Claims 1-15, 18-20, 22 and 23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, in view of the previous office action and the 12-10-2004 amendment.

Accordingly, claims 1-26 are pending in this application; and claims 16, 17, 21 and 24-26 remain active in this Office action.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 21 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 recites the subject matters of "the second insulation film has a thickness such that irradiated laser light will reflect from the low density impurity regions at substantially the same reflectivity as the laser light does from the source and drain regions of the thin film transistor of the first conductivity type". But, it fails to clarify what is the definite relationship between the laser light and the final structure of the claimed invention, and on what stage and/or on what intermediate (or final) structure such laser

light was applied for what purpose and/or with what wavelength along what direction. Otherwise, it leaves the claimed invention indefinite, as a laser light for different purposes with different strengths and wavelengths applied along different directions at different stages may result in different effects on the final structure of the claimed invention, which may require different thickness for the second and/or first insulating films.

For example, during the fabrication of a TFT-based device, such as the one in the instant invention, a laser light beam can be applied to the TFT-based structure/device for a variety of different purposes (such as for: annealing; dopant activation; crystallization; backlighting; mask alignment, among others) that may require a laser light to be with different wavelengths, irradiated along different incident directions, and/or applied at different stages.

Furthermore, the claimed invention does not definitely define whether there are and/or what are other layers between the laser and the recited low impurity and source/drain regions, which would further complicate the effect of the recited reflectivities for the laser light. For example, the reflectivity of a laser light would change substantially when there are other layers of any types formed under and/or over the recited first and/or second insulation films. And, the reflectivity of laser light would approach to zero (even though it would meet the recited condition of equal reflectivities) when sufficient numbers and/or thicknesses of these "other" layers are formed.

Furthermore, without definitely defining what are the structure(s) and/or material set(s) between the recited laser and the recited low impurity regions and/or between the

recited laser and the recited source/drain regions, the recited thickness of the second insulation film cannot be definitely defined based on the recited relations of the recited reflectivities, as at different stages (including but not limited to at least the stages of: the stage immediately after the etching of the recited second insulation film as shown in Fig. 10C; the stage immediately after the formation/cleaning of the recited second insulation film as shown in Fig. 10D; and the stage after the formation of a commonly included final passivation layer on the top of the device), the laser light will pass through substantially different structures and/or material sets corresponding to the different stages before reaching to the recited low impurity regions and the recited source/drain regions. Thus, the relationship between the reflectivities of the these regions vary at the different stages.

Moreover, the claimed invention is directed to a device, i.e., a functionable final structure, in which the recited laser may not be necessarily included. Thus, the claimed invention as a final structure cannot be definitely defined without further clarifying/defining at least through what structure and/or material sets and/or during what stage(s) the recited laser light is irradiated and reaches to the recited reflective regions, so as to have the recited relationship between the recited reflectivities.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 16, 17 and 26, as being supported by the elected species, are rejected under 35 U.S.C. 102(b) as being anticipated by Mamoru (Mamoru et al., JP 09-246558; of record).

Mamoru discloses an active matrix addressed display (AMAD) device having a thin film transistor (TFT) device with a first conductive type TFT (see the cover page figures), comprising: a substrate underlying a semiconductor layer including source and drain regions (13c) and low density impurity regions (13b) with a channel region (13a) therebetween; a first insulation film (the gate insulator layer 14) formed on, and covering all the surfaces of the channel region and the low density impurity regions (at least) up to a nearest edge of each of the respective source and drain regions; a gate electrode (15); and a second insulation film (16) that covers all of the surface of the first insulating film above/on the low density impurity regions (13b), but not formed on the source/drain regions (13c).

Regarding claim 17, the TFT display device of Mamoru further comprises other TFTs, each of them can be regarded as a TFT of a second conductivity type with the second conductivity type and the first conductivity type being a same conductivity type.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21, 24 and 25, insofar as being in compliance with 35 U.S.C. 112 and as being supported by the elected species, are rejected under 35 U.S.C. 103(a) as being unpatentable over Mamoru.

The disclosure of Mamoru is discussed as applied to claims 16, 17 and 26 above.

Regarding claims 21 and 24, although Mamoru does not expressly disclose that the second insulation layer can have such an absolute thickness of about 80nm (as shown in the elected species) or an absolute thickness that may be implicated in these claims, it is noted that the thickness of such an insulation layer is well within the art-known range for such a layer; and it is an art-known result-oriented parameter of importance subject to routine experimentation and optimization.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device of Mamoru with the second insulation layer having such an absolute thickness, so that a TFT-based device with optimized process conditions and/or with optimized performance would be obtained.

Furthermore, it is noted that any potentially implicated limitations associated with the application of the recited laser during the making of the recited device are hereby treated as process limitations as the claimed invention is directed to a device that has to be a functional final structure and the recited laser may not be necessarily included in such a final structure. And, such process limitations would not carry patentable weight in

this claim drawing to a structure, because distinct structure is not necessarily produced.

In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985).

Regarding claim 25, although Mamoru does not expressly disclose that the device can further include second TFT devices formed at the peripheral circuit outside the display area, it is noted that it is art known that such second TFT devices can be desirably and commonly formed so as to have a drive circuit integrated on the same substrate, as readily evidenced in the prior art such as Takemura et al. (US 5,719,065; of record; see Fig. 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the art-known second TFT devices at the peripheral area into the display device of Mamoru, so that a TFT-based display device with the required drive circuit being integrated on a same substrate would be obtained.

#### ***Response to Arguments***

Applicant's arguments filed on November 13, 2006 have been fully considered. Among them, applicant's arguments regarding the indefiniteness claim rejection have been fully considered but they are not persuasive. Responses to them have been incorporated into the indefiniteness claim rejection set forth above in this office action.

And, applicant's arguments regarding the art rejection under 35 U.S.C. 102 and 103 have also been considered but are moot in view of the new ground(s) of rejection.

In addition, per applicant's request, it is noted that applicant's arguments filed on April 7, 2006 were included in applicant's amendment dated April 7, 2006, which was on the record and labeled as "A.NE.(4/07/2006)" in the office's eDAN system. And, it is further noted that the entire contents of the applicant's arguments filed on April 7, 2006 had been fully considered, and they were not found to be persuasive, as already stated in the previous office action.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is 571-272-

1654. The examiner can normally be reached on Monday through Friday, 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard T. Elms can be reached on 571-272-1869. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SH  
February 12, 2007

  
SHOUXIANG HU  
PRIMARY EXAMINER